SMC
N e t w o r k s

USER GUIDE

Compliances

FCC - Class B
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Reorient the receiving antenna
• Increase the separation between the equipment and receiver
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
• Consult the dealer or an experienced radio/TV technician for help

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

SMC Networks, Inc. declare under our sole responsibility that the product "SMCWAA-B EZ-Stream 11Mbps Wireless Audio Adapter" complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION STATEMENT:
FCC Radiation Exposure Statement
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 5 centimeters between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Note: In order to maintain compliance with the limits of a Class B digital device, SMC requires that you use a quality interface cable when connecting to this device. Changes or modifications not expressly approved by SMC could void the user's authority to operate this equipment.
Attach unshielded twisted-pair cable (UTP) to the RJ-45 port and shielded USB cable to the USB port.

Industry Canada – Class B
This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus", ICES-003 of Industry Canada.

Cet appareil numerique respecte les limites de bruits radioelectriques applicables aux appareils numeriques de Classe B prescrites dans la norme sur le material brouilleur: "Appareils Numeriques," NMB-003 edictee par l'Industrie.

EC Conformance Declaration CE 0336 (!)

SMC contact for these products in Europe is:
SMC Networks Europe,
Edificio Conata II,
Calle Fructuós Gelabert 6-8, 2o, 4a,
08970 - Sant Joan Despí,
Barcelona, Spain.

This RF product complies with R&TTE Directive 99/5/EC. For the evaluation of the compliance with this Directive, the following standards were applied:

• Electromagnetic compatibility and radio spectrum matters (ERM)
EN300 328-1 (2001-12)
EN300 328-2 (2001-12)
• Electromagnetic Compatibility (EMC) Standard for radio equipment and services
EN301 489-1
EN301 489-17
• Safety Test
EN60950

Safety Compliance
Wichtige Sicherheitshinweise (Germany)
1. Bitte lesen Sie diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie keine Flüssigoder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzanschlu ßsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Beschädigungen hervorrufen.
7. Die Belüftungsöffnungen dienen der Luftzirkulation, die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt

werden.

8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.

9. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.

10. Alle Hinweise und Warnungen, die sich am Gerät befinden, sind zu beachten.

11.Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom

Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.

12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.

13.Öffnen sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.

14.Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:

a. Netzkabel oder Netzstecker sind beschädigt.

b. Flüssigkeit ist in das Gerät eingedrungen.

c. Das Gerät war Feuchtigkeit ausgesetzt.

d. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.

e. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.

f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.

15. Stellen Sie sicher, daß die Stromversorgung dieses Gerätes nach der EN 60950 geprüft ist. Ausgangswerte der Stromversorgung sollten die Werte von AC 7,5-8V, 50-60Hz nicht über oder unterschreiten sowie den minimalen Strom von 1A nicht unterschreiten.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weniger.

1| Package Contents

Section 1.1 | Package Contents

After unpacking the SMCWAA-B, check the contents of the box to be sure you have received the following components:

- 1 SMCWAA-B EZ-Stream™ 11 Mbps Wireless Audio Adapter
- 1 EZ Installation Wizard and Documentation CD
- 1 Stereo RCA connector cable
- 1 Power Supply
- 1 Remote control
- 2 AAA batteries
- 1 Quick Installation Guide

Immediately inform your dealer in the event of any incorrect, missing or damaged parts. If possible, please retain the carton and original packing materials in case there is a need to return the product.

Please register this product and upgrade the product warranty at SMC's Web site: http://www.smc.com

2| Hardware Description

The EZ-Stream™ 11 Mbps Wireless Audio Adapter is a cutting-edge and innovative technology brought by SMC to your Home Entertainment Center. This product is Universal Plug-and-Play and Intel NMPR compliant and engineered to be fast and easy to install, providing for a seamless integration into your existing 802.11b or 802.11g wireless network. The SMCWAA-B has a large matrix LCD display that provides for easy reading and the easy-to-navigate user interface allows for fast audio content selection. The SMCWAA-B gives you the freedom to play the MP3 and WMA music stored on your PC in any room of your home. You can specify audio tracks as "Favorites" by the click of a button, and then one menu gives you quick and easy access to the songs you listen to the most. In addition, support for the RHAPSODY™ Digital Music Service gives you access to consistent Internet Radio and a virtually unlimited collection of thousands of music albums.

The SMCWAA-B EZ-Stream 11Mbps Wireless Audio Adapter is equipped with a large LCD screen on the front panel of the product. On the left and right panels, the SMCWAA-B has an AC power adapter outlet, hardware reset button, and an Audio out port which can be used with headphones or powered speakers with the supplied RCA left and right connector cable.

Section 2.1 | Features / Benefits

- Listen to Internet Radio stations and music files (e.g. MP3, WMA) over your audio system
- View device status information using the built-in Web-based presentation page
- Compact design allows for space savings in your home entertainment center
- Manage profiles and upgrade software using the PC-based Maintenance Utility
- Browse and search content by Song, All Tracks, Albums, Artist, Genres, Playlists
- Automatically share digital multimedia content from multiple PCs
- Unparalleled support for Windows 98SE, Me, 2000, and XP
- Conforms to the standard of Universal Plug-and-Play (UPnP) and meets Intel's Networked Media Product Requirements (NMPR) in a Control Point capacity
- Connects to 802.11b or 802.11g wireless local area networks
- Full optimization of your digital content-oriented environment

Section 2.2 | Using the Remote Control

The SMCWAA-B EZ-Stream 11Mbps Wireless Audio Adapter Remote Control makes your digital content-oriented environment much easier to navigate.

Using the remote control device and the LCD screen, you can:

- Browse and listen to music files stored on your PC through your audio system.

- Browse and listen to Rhapsody™ / Internet Radio stations through your audio system.

- Store and play up to 10 items (Internet Radio stations, music files, playlists etc) on preset numbers.

- Save and play up to 20 items (Internet Radio stations, music files, playlists etc) in a Favorites list.

The following section describes the remote control layout and its functions in detail.

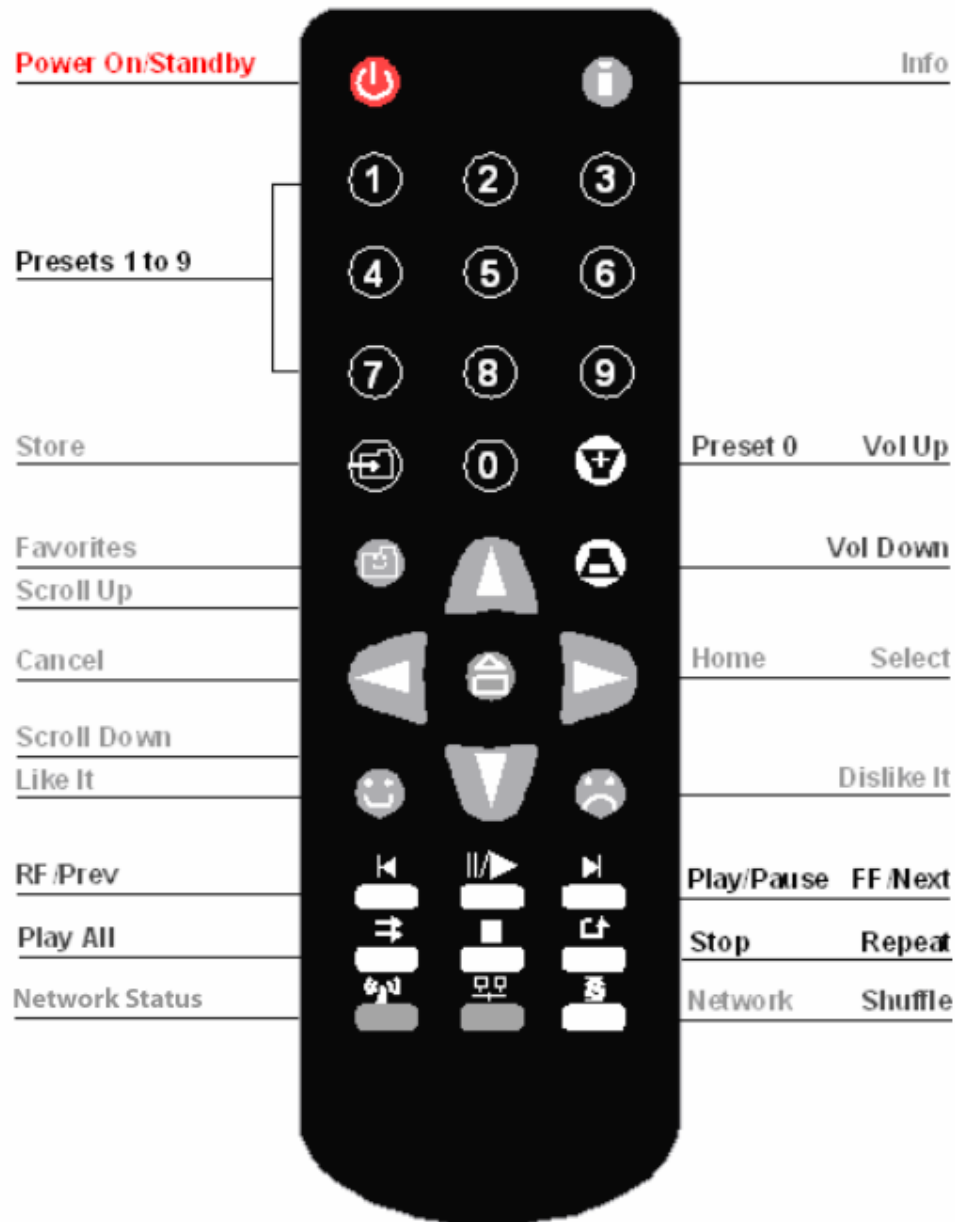| Button	Function
⏻	**On/Standby** Turns on the Wireless Audio Adapter. Pressing the button again turns the device off (the device is in "standby" mode).
❶	**Information** Displays additional information on the currently selected Internet Radio station or music file. Pressing the button again returns you to the current menu item.
▲	**Scroll Up** Scrolls up through the current menu items. Pressing this button for longer than 2 seconds displays every 10th item in the list. Pressing this button for longer than 4 seconds displays every 20th item in the list. *Edit Mode:* Enter or change characters by scrolling up through the ASCII character table.
▼	**Scroll Down** Scrolls down through the current menu items. Pressing this button for longer than 2 seconds displays every 10th item in the list. Pressing this button for longer than 4 seconds displays every 20th item in the list. *Edit Mode:* Enter or change characters by scrolling down through the ASCII character table.
◀	**Cancel** Moves up one level up in the menu hierarchy on the LCD screen (Example: If Artist is displayed, pressing **Cancel** returns you to the PC Files menu). *Edit Mode:* Cancels changes made to network settings.
▶	**Select** Selects the currently displayed menu item. Example: If the currently displayed item is an *album,* pressing **Select** will display a list of all songs in that album. If it is an *Internet Radio station*, pressing **Select** will select that station. If it is a *song*, pressing **Select** will select that song. *Edit Mode:* When using the multi-tap character entry method, press this button to confirm and leave the menu item. When using the up/down ASCII character entry method, press this button twice to confirm and leave the menu item.
❚❚/▶	**Play** Press the button once to play the currently selected item (Internet Radio station, playlist, album, artist, genre or song title).

Button	Function
	Information about the current item is displayed on the LCD screen.
	Pause Press the button again while the song is playing to pause the song (only applicable to music files). To continue playing an item that has been paused, press **Play** again.
■	**Stop** Stops playing the current item.
▶I	**Next** Press the button once to jump to the next song in the playlist, album, artist or Internet Radio station list. If it reaches the end of a list, it wraps around to the beginning of the list.
	Fast Forward Press and hold the button for more than 1 second to fast forward the current song. Play recommences when the button is released (only applicable to music files).
I◀	**Previous** Press the button once to jump to the previous song in the playlist, album, artist or Internet Radio station list. If it reaches the beginning of a list, it wraps around to the end of the list.
	Fast Rewind Press and hold the button for more than 1 second to fast rewind the current song. Play recommences when the button is released (only applicable to music files).
	Edit Mode: Press this button once to delete one character at a time (like the backspace button on a computer keyboard).
▼	**Vol Up** Increases the volume.
	Edit Mode: Press this button once to enter subsequent characters in UPPER CASE (default is lower case).
▲	**Vol Down** Decreases the volume.
	Edit Mode: Press this button once to enter subsequent characters in lower case.
⇉	**Play All** Plays all the files in your music file collection on the PC.
S̲	**Shuffle** Toggles between random and ordered playback modes. Note: The chosen mode is stored permanently until you press the Shuffle button again.
⤴	**Repeat** Repeats the song that is currently playing (only applicable to music files).
⏏	**Home** Displays the top level menu.
(cp)	**Network Status** Displays the top level of the Network Status menu.
📷	**Favorites List** Displays the Favorites List that is stored on the Wireless Audio Adapter. The list may contain up to 20 items.
☺	**Like It** Adds the currently playing song to the Favorites list.

Button	Function
😞	**Dislike It** Deletes the currently playing song from the Favorites list.
🔁	**Store** Press this button followed by one of the number buttons **0** to **9** to store the currently selected item against the preset number selected. The following items can be stored against preset numbers: Internet Radio station, album, artist, playlist, song. Note: There is no "delete" function - storing an item simply replaces any item that may have been previously stored against the same preset number.
1 **2** **3** **4** **5** **6** **7** **8** **9** **0**	**Preset 0** to **9** Plays the item stored on the preset number selected (0 to 9).
🖧	**Configuration** Displays the top level of the Configuration menu.

Section 2.3| Remote Control Layout

Power On/Standby — Info

Presets 1 to 9

Store — Preset 0   Vol Up

Favorites — Vol Down
Scroll Up

Cancel — Home   Select

Scroll Down
Like It — Dislike It

RF/Prev — Play/Pause   FF/Next

Play All — Stop   Repeat

Network Status — Network   Shuffle

Section 2.4 | Wireless Audio Adapter LCD Screen Features

The Wireless Audio Adapter has a built-in LCD screen. Together with the remote control device, it enables you to access Internet Radio stations as well as music files stored on your PC. The following table describes the symbols that may be displayed on the LCD screen.

Symbol	Description
![shuffle]	Shuffle mode enabled.
![repeat]	Repeat mode enabled.
▶	Now playing.
‖	Now paused.
‹	Move up the menu hierarchy.
›	Move down the menu hierarchy.
![processing]	Processing (please wait).
![item]	Item may be played.
![nowplayingall]	Now playing all items.
![buffer bars]	Buffer fill status (more bars = buffer filling).
![signal bars]	Wireless/Radio signal strength (more bars = stronger signal).
![radio disconnected]	Radio disconnected.
![radio connected]	Radio connected.

The menu displayed on the Wireless Audio Adapter LCD screen is organized as a hierarchy, enabling access to the Favorite stations as well as music files stored in your PC's *Musicmatch Music Library*. The top level menu structure is shown below.
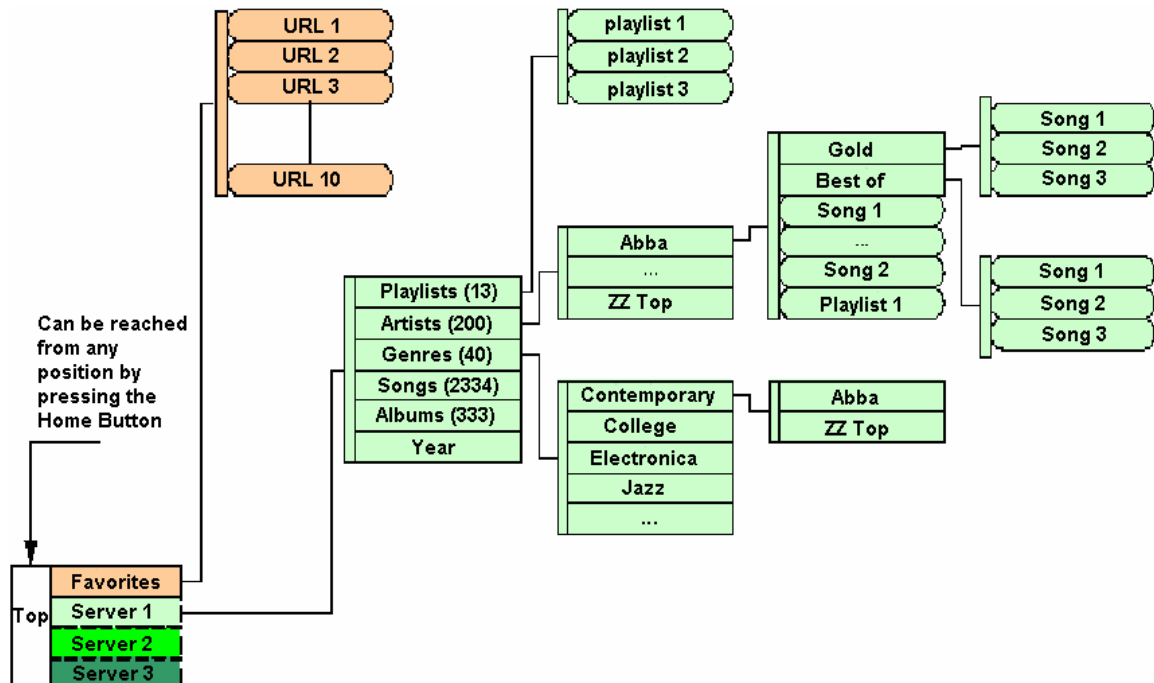
3 | System Requirements

To use the SMCWAA-B, you must have:

- A PC running Windows 98SE/Me/2000/XP
- CD-ROM drive
- Microsoft Internet Explorer 5.0 or later
- SVGA or higher resolution monitor (minimum resolution 800x600)
- Sound card
- Video display card
- Minimum of 96MB RAM and 300 MHz CPU
- Minimum of 50MB available hard disk space (400MB recommended for Internet Radio usage)
- Broadband Internet: For Rhapsody™ or Internet Radio usage
- Another IEEE 802.11b, or 802.11g compliant device installed on your network such as the Barricade™ g 2.4GHz 802.11g Wireless Broadband Router with Print Server (SMC2804WBRP-G), or another wireless adapter, such as the EZ Connect™ g 2.4GHz 802.11g Wireless PCI Card (SMC2802W)

4 | Musicmatch Jukebox UPnP Server Installation Windows 98SE/Me/2000/XP

NOTE: Installation processes such as this may require the use of your original, licensed copy of Windows. Please have your Windows CD available BEFORE proceeding with the installation.

1. Insert the EZ Installation Wizard and Documentation CD.

2. Click the [Install MUSICMATCH Jukebox 8] button to continue.
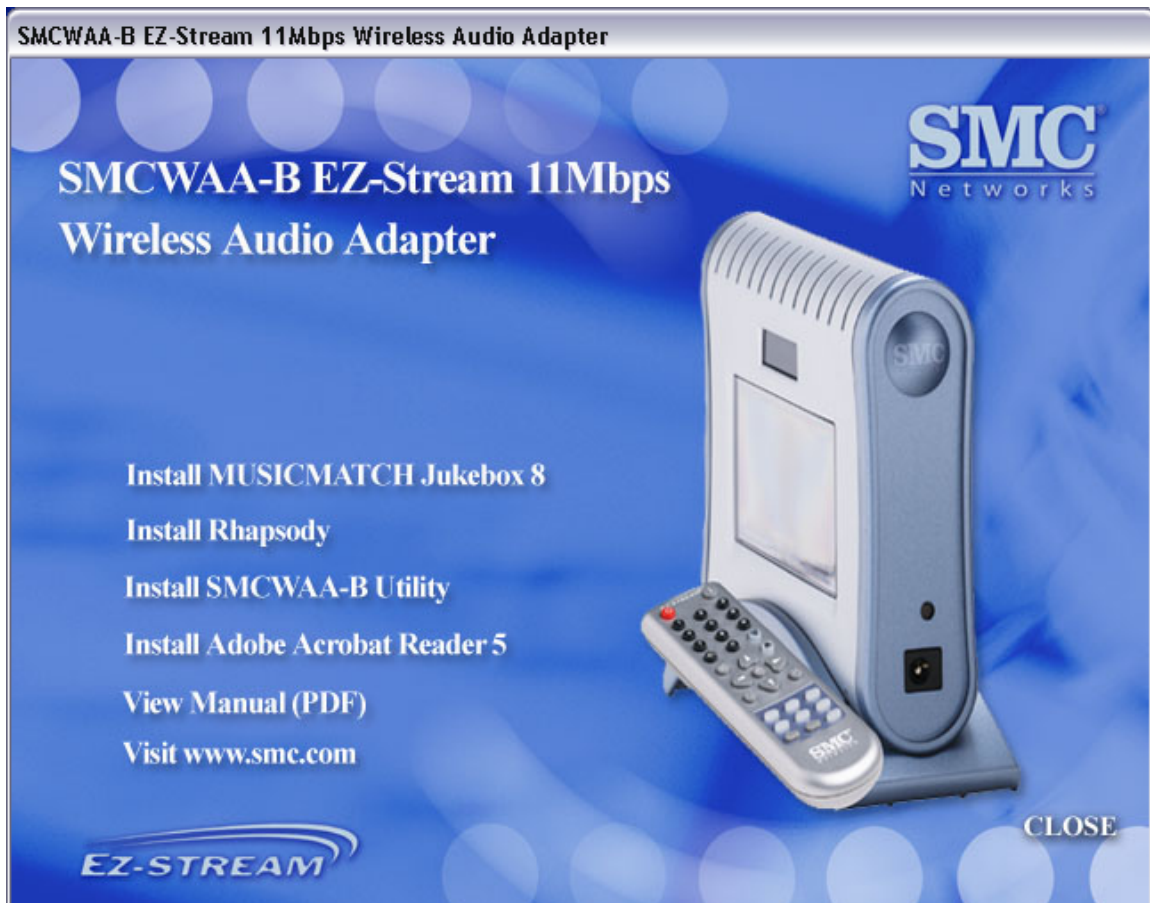
3. Please wait while the utility begins to load. Then follow the on-screen instructions on the PC until the installation is complete. (Note: This process can take up to several minutes depending on the speed of your computer.)

4. Start the Musicmatch Jukebox software by clicking this icon on your desktop:

musicmatch
JUKEBOX

5. From the "View" menu, click "My Library". From the "File" menu, choose "Add New Tracks…" and select music files from your own collection. Click "Add". (Note: For other options when adding files, please refer to the Musicmatch Jukebox online help.)

6. From the "Options" menu, choose "Settings". Click the tab named "CD Lookup/Connectivity" and verify that the UPnP Music Server is enabled. If it is in a [Not Running] state, select the "Enable Music Server" checkbox and you should then see the message [Running] appear.

NOTE: If you also have a SMCWMR-AG EZ-Stream™ Universal Wireless Multimedia Receiver installed on your network, please remember that it only works with the Media Server software that came with it. You must disable the Musicmatch UPnP Music Server in order for the SMCWMR-AG to operate properly.

5 | SMC EZ-Stream™ 11Mbps Wireless Audio Adapter Setup

The following table describes the various supported network environments. The wireless network should be installed and running before you attempt to install the Wireless Audio Adapter.

Network Environment	Description
Wireless, via an Access Point	• DSL/cable modem
	• Access Point (AP) with wireless card
	• PC with wireless connection to AP
	• Wireless Audio Adapter connects wirelessly to AP
Peer-to-peer (Ad Hoc)	• No modem or AP
	• PC with wireless card
	• Wireless Audio Adapter connects wirelessly to PC
	• Note: Internet Radio features are not supported in this environment.

1) Insert the provided batteries into the remote control.
2) Connect the provided RCA audio cable from the SMCWAA-B to your home audio system or you may use headphones as well.
3) Plug the provided power supply into your wall socket and connect the power cable to the SMCWAA-B.
4) Wait for the SMCWAA to power up. It will attempt to connect automatically to your wireless network using its built-in default settings. If it is not able to connect, the LCD will display a list of available wireless networks for you to choose from. Scroll down the list and select the desired WLAN.
5) If encryption is enabled on your wireless network, you will be prompted to enter a **Key**. Check that the **Key Entry Method** and **Key Size** are correct and then enter the encryption key for your wireless network. Once completed, the SMCWAA-B will save the settings and reboot.
6) A welcome screen will be displayed while the SMCWAA-B is connecting to the network. After a connection has been successfully established, the top level menu will be displayed. Scroll down, select your Music Server and choose your audio content (i.e. – genre, artist, album, playlist, song). Start streaming!

6 | Playing Your Multimedia Content

Section 6.1 | Navigating the LCD Screen Menus

The following diagram describes how to use the remote control buttons to navigate the LCD screen menus:
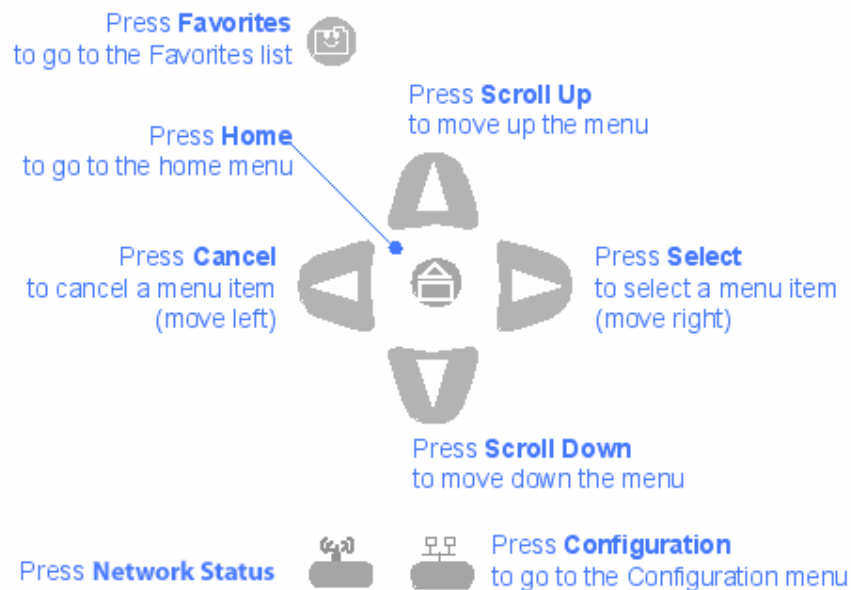
Section 6.2 | Before You Start

- The Wireless Audio Adapter must be connected to the wireless network.

- The UPnP Media Server must be running on your PC containing the Musicmatch Music Library (see "Musicmatch Jukebox UPnP Server Installation" in Section 4, Step 6).

- There must be at least one music file in the Musicmatch Music Library on your PC (see "Musicmatch Jukebox UPnP Server Installation" in Section 4, Step 5).

Section 6.3 | Music Files Menu

You can browse music files by album, all tracks, artist, genre (music style), genre/artist, genre/album and playlist. The music files are organized in a hierarchical menu, similar to the way in which files are organized in subdirectories on a PC. The actual content of each menu is determined by the structure of your Musicmatch Music Library. An example is shown on the following page.

Section 6.4 | Playing Music Files

Note: "Server 1", "Server 2", "Playlist1", "Album1", "Artist1", and "Track1" are used here solely as examples and are not actual names that you can expect to see.

Use the remote control and follow these steps to browse for and play music files:

1. Press the **Home** button on the remote control to go to the top level of the menu.

2. Press the **Select** button to locate the MusicLibrary server. If you have only one MusicLibrary server, "Server 1" is displayed. If you have multiple servers, press the **Scroll Up/Down** button again to select between "Server 1", "Server 2" etc.

3. Press the **Select** button to select the server.

4. To play all songs in the Musicmatch MusicLibrary on your PC, press **Play All**.

5. To select a genre, album, artist, playlist or song, use the **Scroll Up/Down** and **Select** buttons until the desired item is displayed.

6. To play all the items within the selected album/playlist/artist, press the **Play All** button.

7. To play an individual song, use the **Scroll Up/Down** and **Select** buttons to select the desired song and then press the **Play** button.

   For example, if you press the **Play** button while...
   ...Playlist1 is displayed, all of the tracks on Playlist1 will be played
   ...Artist1 is displayed, all of the tracks on all albums by Artist1 will be played
   ...Album1 is displayed, all of the tracks on Album1 will be played
   ...Track1 is displayed, only Track1 will be played.

5. Press the **Play** button again to pause the song. Press **Play** again to restart the song.

6. Press the **Repeat** button to repeat the current song.

7. Press the **Shuffle** button to play items in random order. Press the **Shuffle** button again to restore play order, depending on item(s) selected.

8. Press the **Stop** button to stop playing the item.
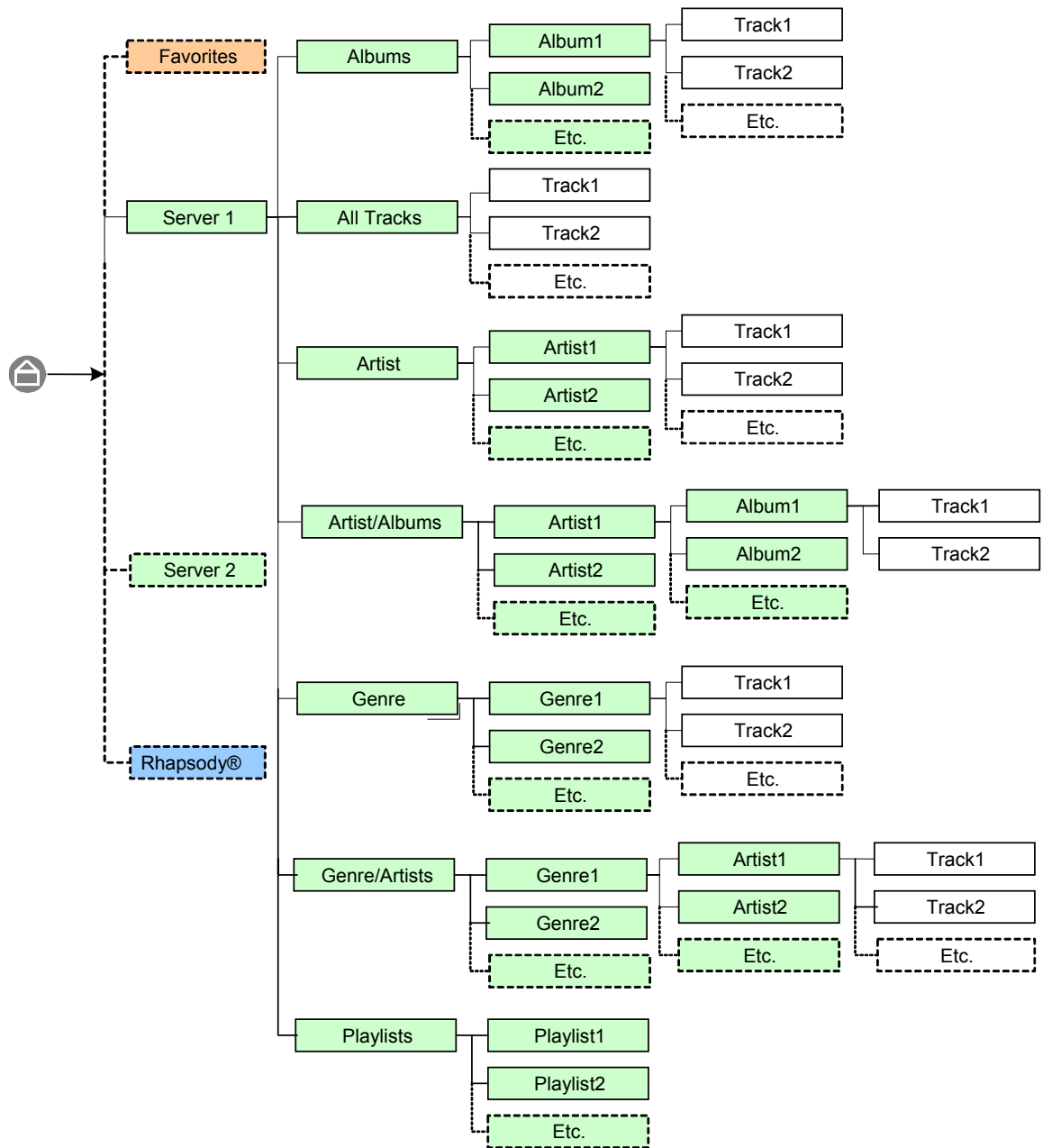
Section 6.5 | Music File LCD Display Example

The Wireless Audio Adapter LCD screen displays track information during playback of a music file. Here are a few examples:

Example Display Text	Explanation
Rolling Stones	Artist name.
Let's spend the night	Album / Song title.
▶ or ‖	Now playing or paused.
⬆ and/or ⤮	Playback Modes:
	• Repeat mode enabled
	• Shuffle mode enabled
‹ and/or ›	Move up / down the menu hierarchy.
⬛	Item may be played.
9/54	Track number (9) of total tracks (54) in item.
�📶	Wireless signal strength indicator.
⤴	Streaming buffer fill indicator. Indicates that the station signal is being buffered to the device and will begin to play in a few seconds.
Length: 01:56/04:48	By default, shows elapsed time / total time for current track.

Rate: 128 Kbps	Encoded bit rate
Sample: 48 KHz	Sampling frequency
Stereo	Audio format (stereo or mono)

Section 6.6 | Using Preset Numbers to Store Items

You can store a music file, album, playlist etc using one of 10 preset numbers. Follow these steps to store an item:

1. Select an item to be stored (see previous sections) and check that it is active by playing it.

2. Press the **Store** button, followed by the preset number (**0** to **9**) where you want to store the item.
   Note: There is no "erase" function; simply overwrite an existing preset with the new item.

Selecting and Playing a Preset Item

1. Simply press the relevant preset number button (**0** to **9**).

2. To display information about the selected item, press the **Information** button. Pressing the **Information** button repeatedly displays more pages of information (if available).

3. Press the **Play** button to listen to the selected item.

4. Press the **Stop** button to stop listening to selected item.

Section 6.7 | Using the Favorites List

Creating and Saving a Favorites List

You can save up to 20 of your favorite albums, songs etc to a Favorites list stored locally on the Wireless Audio Adapter.

To add the song or Internet Radio station currently playing to your Favorites list:

- Click the **Like It** button.

To remove the song or Internet Radio station currently playing from your Favorites list:

- Click the **Dislike It** button.
  Note: If the song or station is not in the Favorites list, the command is ignored.

Playing Items from the Favorites List

1. Press the **Favorites** button OR
    From the top level menu, use the **Scroll Up/Down** buttons until
    "Favorites" is displayed. Press the **Select** button.

2. To play the entire Favorites list, click the **Play** button.

3. To play a specific item from the Favorites list, press the **Scroll Up/Down**
    buttons until the desired item is displayed, then press the **Select** button to
    select the item. Press the **Play** button to begin playing the item.

Replacing Items on the Favorites List

The Favorites list may contain up to 20 items. If you attempt to add a 21st item,
a message appears on the Wireless Audio Adapter's LCD display to indicate that
the list is full. If you wish to replace an existing Favorites item with the new
item:

1. Press the **Favorites** button to display the list.

2. Use the **Scroll Down** button to locate the item to be replaced.

3. Click the **Dislike It** button to remove the old item from the list. The new
    item is automatically inserted into the Favorites list.

Section 6.8 | Using the Configuration functions
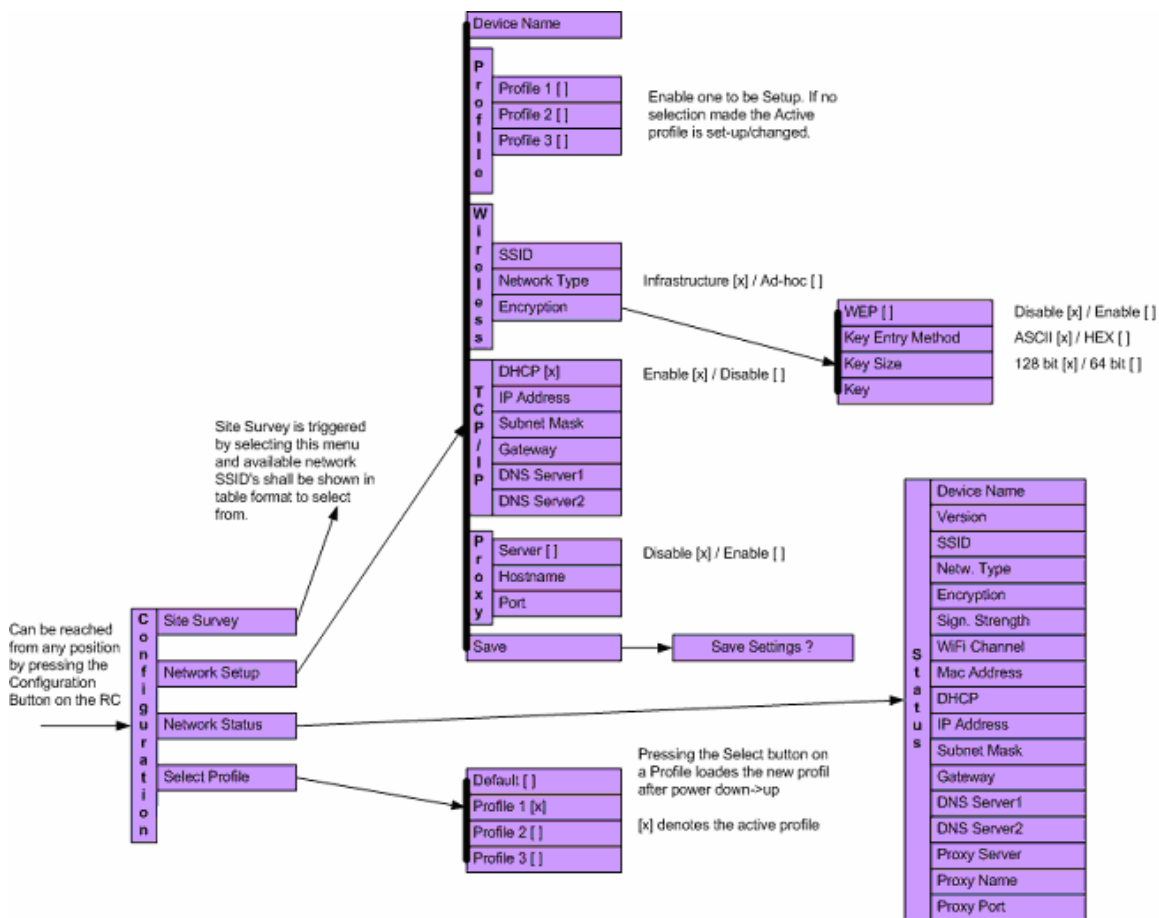
Configuration Menu

This chapter describes how to use the following functions:

- **Site Survey**
  Set up your Wireless Audio Adapter by selecting one of the available networks.

- **Network Setup**
  Manually configure wireless network, TCP/IP and proxy settings.

- **Network Status**
  View various network status settings

- **Select Profiles**
  Select a network profile to use with your Wireless Audio Adapter

Before You Start

1. The Wireless Audio Adapter must be turned on and connected to the wireless network.

Selecting a Wireless Network

This step is normally performed as part of the installation process. However, should new wireless networks become available after installation, you can use this function to select and setup a new network profile for your Wireless Audio Adapter.

1. Press the **Configuration** button on the remote control until "Configuration" is displayed.

2. Press the **Scroll Down** button until "Site Survey" is displayed. Press the **Select** button.

3. A list of available wireless networks (shown by SSID) is displayed. To browse through the available list, press the **Scroll Up/Down** buttons.

4. Press the **Select** button to select the desired network.

5. When the Wireless Audio Adapter has successfully connected to the new wireless network, the message "Configuration Done. Device Will Reboot" is briefly displayed. As soon as the Wireless Audio Adapter is registered on the network, it will start the discovery process for the UPnP Media Server on that network and locate any music files in the Musicmatch Music Library.

6. Press the **Home** button ⊜ on the remote control. The device is now ready to operate.

Network Setup Using the Remote Control

The network profile settings are normally set up automatically during the installation process. However, if the automatic configuration does not work, your wireless network settings change or you experience problems during operation of the Wireless Audio Adapter, you may need to use the Network Setup functions to change the network settings.

Network Setup Edit Mode

In order to be able to enter text, an "Edit Mode" is activated when you select certain settings under the Network Setup menu.

While you are in Edit Mode, many of the remote control buttons have different functions. These are summarised below.

There are also two ways in which text can be entered:

- Using the arrow buttons to scroll through the ASCII code table and select characters OR

- Multi-tapping number buttons to enter characters, similar to the way in which addresses or SMS messages may be entered on a mobile phone.

ASCII Character Table Method

▲ ▼	**Scroll up and down through ASCII character table**. Note: ***** denotes the currently selected item.
▶	**Select / Save changes** or **Move right** one character at a time.
◀	**Cancel changes** or **Move left** one character at a time.

Note: You must press the **Select** key twice after you have finished editing to confirm changes and leave the menu item.

Multi-Tap Method

Example: Press ⊻ **6 9999 1111111 9 2 2** for "MY SMCWAA-B".

Note: You must press the **Select** key once after you have finished editing to confirm changes and leave the menu item.

1 .,?!-& space	**2** ABC	**3** DEF
4 GHI	**5** JKL	**6** MNO
7 PQRS	**8** TUV	**9** WXZY
⊻ UPPER CASE	**0** *#_~:0	☰ lower case (default)

Changing Network Status Settings

1. Press the **Configuration** button on the remote control until **Configuration** is displayed.

2. Press the **Scroll Down** button until **Network Setup** is displayed.

3. Press the **Select** button. The **Device Name** for the Wireless Audio Adapter is displayed.

4. Press the **Scroll Down** button until **Profile** is displayed. Press the **Select** button.

5. Press the **Scroll Down** button to find the profile you wish to edit and press the **Select** button OR
If no profile selection is made, the currently active profile (denoted by an

asterisk *) will be changed.

6. Press the **Scroll Up/Down** buttons until the desired network setting is selected. Press the **Select** button to edit the setting. Note: for settings that require text input, this triggers Edit Mode.

7. Make the changes required to the setting and press the **Select** button.

IMPORTANT: When you have finished making changes to Network Setup settings, you must explicitly save the settings in order for them to take effect. If you use the Cancel button during this process, all changes will be lost.

8. Press the **Scroll Down** button until **Save** is displayed. Press the **Select** button to display "Save Settings?" (or you may also be prompted to press the **Store** button to save and exit).9.   Press the **Select** button to save the changes (or press the **Cancel** button to abandon changes).

10. The Wireless Audio Adapter will then restart and use the new settings.

Available Network Status Settings

Setting	Explanation
Device Name	Name of the Wireless Audio Adapter device. Example: My SMCWAA-B
Version	Current version of the Wireless Audio Adapter software in use.
SSID	SSID (Service Set Identifier) assigned to the Wireless Audio Adapter by your wireless network. The SSID must contain between 2 and 32 alphanumeric, case-sensitive characters.
Network Type	Wireless network type. Options: **Infrastructure** If the network uses an Internet Access Point **Ad-Hoc** If the network uses a peer-to-peer connection and no Internet Access Point.
WEP	Indicates whether or not Wired Equivalent Privacy (WEP) encryption is enabled on the wireless network. Options: **Disabled** (default) **Enabled**.
Key Entry Method	Options: **ASCII** (default) Key is entered as text (this is not the same as a passphrase however).

Setting	Explanation
	Hex Key is entered as a hexadecimal number using the characters 0-9, A-F, a-f.
Key Size	Used to restrict the size of the WEP Key entered. Options: **64 bit** **128 bit** (default)
Key	WEP Key to enable the Wireless Audio Adapter to be connected to an encrypted wireless network. Only one key is supported. The key input is dependent on the Key Entry Method and Key Size selected. For example, if the Key Size is 64 bits and the Key Entry Method is ASCII, the key must be entered as an ASCII string no larger than 64 bits.
Signal Strength	Wireless network signal strength.
WiFi Channel	Wireless channel currently used by the Wireless Audio Adapter.
MAC Address	Unique MAC address assigned to the Wireless Audio Adapter
DHCP	Indicates whether or not a DHCP server is available to allocate a dynamic IP address to the Wireless Audio Adapter. Options: **Enabled** (default) **Disabled**
IP Address	IP address currently allocated to the Wireless Audio Adapter by the DHCP server, or the static address allocated to the Wireless Audio Adapter.
Subnet Mask	Subnet mask for the network to which the Wireless Audio Adapter is connected.
Gateway	IP address of any gateway to which the Wireless Audio Adapter is connected.
DNS Server1	IP address of an Internet DNS server to which the Wireless Audio Adapter is connected.
DNS Server2	IP address of an alternative Internet DNS server to which the Wireless Audio Adapter is connected.
Proxy Server	Indicates whether or not traffic to and from the Internet must first pass through a proxy server.

Setting	Explanation
	Options:
	Enabled
	Disabled (default)
Proxy Hostname	Name of the proxy server host computer. Example: proxy.mydomain.com
Proxy Port	Port on the proxy server to which the device connects. Example: 8080

Viewing Network Status Settings

If you followed the Getting Started section and are successfully operating the Wireless Audio Adapter without problems, you may never need to view or update the Network Status settings.

Use the remote control and follow these steps to display network status settings:

1. Press the **Configuration** button on the remote control until "Configuration" is displayed.

2. Press the **Scroll Down** button until "Status" is displayed. Press the **Select** button.

3. To browse through the network status menu, press the **Scroll Up/Down** buttons.

4. Press the **Select** button to display the desired network status setting.

Selecting a Network Profile

A "default" network profile is loaded automatically when you first turn on the Wireless Audio Adapter. However, you may wish to choose an alternative network profile that has been created using the WAA Maintenance Utility.

Follow these steps to choose a different profile:

1. Press the **Configuration** button to display the top level Configuration menu.

2. Press the **Select** button to select Network Profiles. The currently active profile is denoted by an asterisk *.

3. Use the **Scroll Down** button to find the desired profile.

4. Press the **Select** button to select the new profile. This process will take about 10 seconds. The new profile should now be displayed as active with an asterisk * beside it.

5. Turn off the Wireless Audio Adapter and turn it on again. The new profile is

automatically loaded on startup.

7 | SMC EZ-Stream 11Mbps Wireless Audio Adapter Utility

The Wireless Audio Adapter (WAA) Utility is PC-based software that allows you to configure your Wireless Audio Adapter network profiles. Normally, you will only need to use this tool if:

- you want to configure your profile settings OR
- you need to troubleshoot network-related problems OR
- you wish to upload new software for your Wireless Audio Adapter

To install this utility, insert your EZ Installation Wizard CD-ROM, wait for the setup wizard to appear and click [Install SMCWAA-B Utility]. Click the [Next >] button and follow the instructions on the screen to install the software.

The Wireless Audio Adapter is delivered out-of-the-box, pre-configured with default settings. These settings are stored in the Factory Defaults network profile, which cannot be changed. However, other profiles are provided which you may edit to suit your wireless network.

There are two methods for performing configuration tasks:

- Using the remote control in the Configuration menu on the Wireless Audio Adapter (see Changing Network Status Settings on page 26) OR

- Using the SMCWAA-B Utility on your PC.

This chapter describes how to perform the following tasks using the SMCWAA-B Utility:

- Start the SMCWAA-B Utility

- Install a new SMCWAA-B Manually by Editing a Profile

- View existing network profiles

- Activate a different network profile for the SMCWAA-B

- Verify which Wireless Audio Adapters are available on the wireless network

- Edit a profile

Some tasks, however, can only be performed using the SMCWAA-B Utility:

- Add a new profile

- Upload new software for the Wireless Audio Adapter

In addition, the following task may be required if you have a single PC connection to the Internet:

- Enable Internet Sharing

Section 7.1 | Starting the SMCWAA-B Utility

The Wireless Audio Adapter (SMCWAA-B) Utility is a software tool for managing the configuration of your Wireless Audio Adapter(s) from your PC.

To start the tool:

- From the **Start** menu, choose **All Programs**, **SMCWAA-B PC Utility** OR

- Open the **smc_waai.exe** file in Windows Explorer under the folder where you installed the software
(the default installation folder is **C:\Program Files\SMCWAA-B PC Utility**).
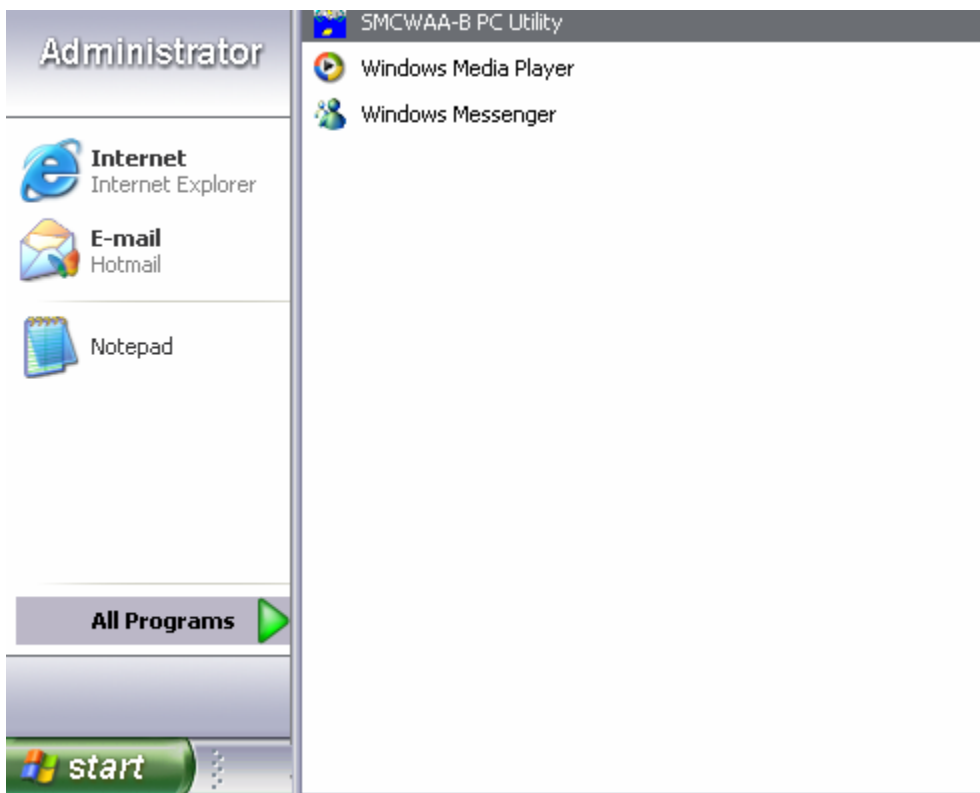
When the application opens, it automatically attempts to locate all available Wireless Audio Adapters on your network, and displays those it finds in the Available Wireless Audio Adapters list.

Note: If no network adapters are found, the following message will be displayed instead:
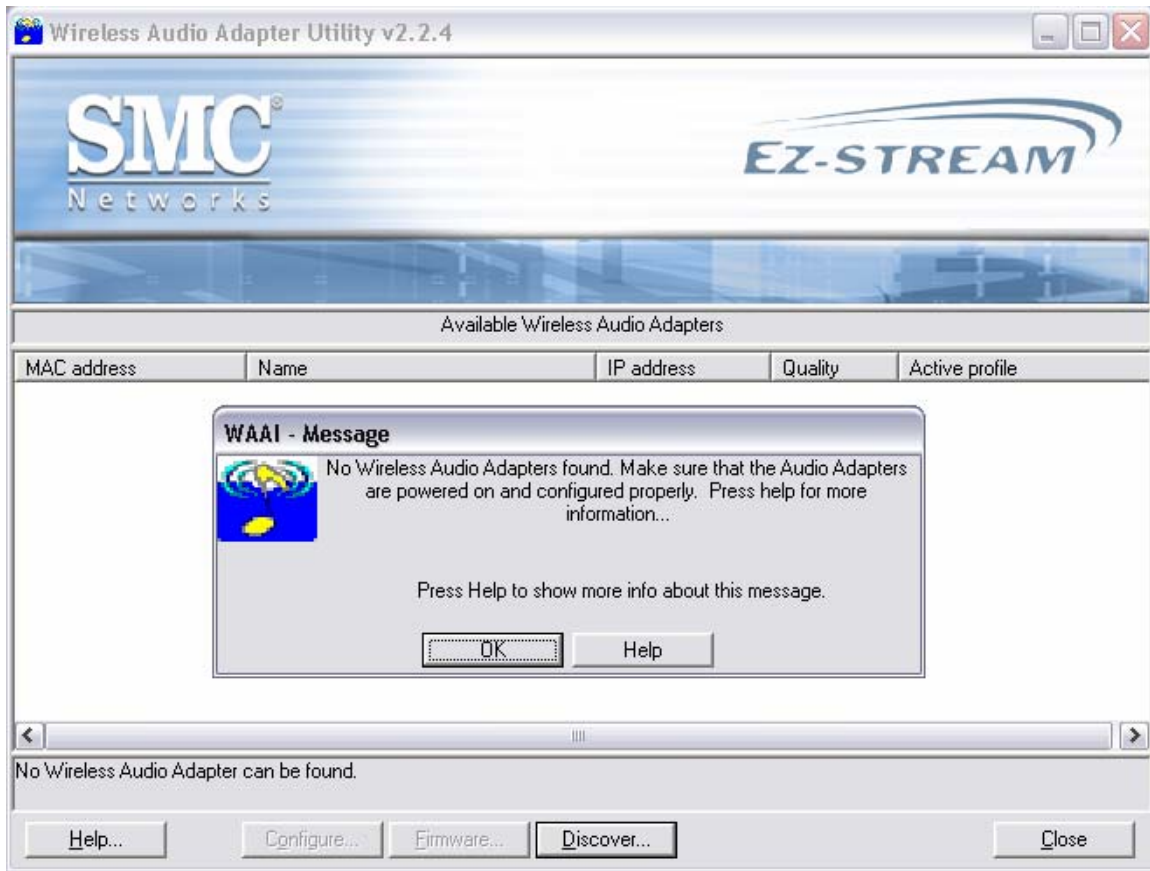
Section 7.2 | Installing a New SMCWAA-B Manually by Editing a Profile

If the automatic Wireless Audio Adapter configuration does not work, you can use the SMCWAA-B Utility to edit the profile manually.

1. Use the remote control to set the Wireless Audio Adapter to use the "Default" profile.

2. Before proceeding with the next step, note down all of the current settings for your wireless network.

3. Set your wireless network to use the *same* profile as the Wireless Audio Adapter:
    SSID: *SMC*
    Network Type: *Infrastructure*
    Encryption: *Disabled*

4. Start the SMCWAA-B Utility on the PC. The Wireless Audio Adapter should be displayed in the main panel.

5. Click to highlight the name of the Wireless Audio Adapter and click the **Configure...** button to display its network profiles.

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6. Select a profile by clicking on the relevant tab. **IMPORTANT: DO NOT APPLY THE PROFILE YET.**

7. Activate the profile by clicking the **Make Active** button.

8. Now save the Profile by clicking the **Apply** button.

9. Click the **Close** button to return to the main SMCWAA-B Maintenance Utility window.

10. Change your wireless settings back to the required settings for your network.

11. In the SMCWAA-B Utility, click the **Discover...** button. The SMCWAA-B should be displayed in the main panel as being available on your network.

Section 7.3 | Viewing Existing Network Profiles

To view the details of existing network profiles:

1. From the main SMCWAA-B Utility window, select a Wireless Audio Adapter from the list and click the **Configure...** button.

2. The **Factory defaults** profile is displayed. Click on the other tabs to display alternative profiles, if any. Note that the currently active profile has the **Make Active** button greyed out (disabled) and an "Active Profile" icon in the top right corner of the screen.

Section 7.4 | Activating a Different Network Profile

To activate a different profile for a Wireless Audio Adapter:

1. Use the remote control device to select the profile directly on the Wireless Audio Adapter OR

2. From the SMCWAA-B Utility, display the desired profile and click the **Make Active** button.

Section 7.5 | Verifying Wireless Audio Adapters Available on the Network

In addition to the application performing an automatic discovery on startup, you can verify which Wireless Audio Adapters are available on the network at any time. This function should always be performed following changes to a Wireless Audio Adapter profile.

To verify which Wireless Audio Adapters are on the network:

1. From the main SMCWAA-B Utility window, click the **Discover...** button.

2. A list of available Wireless Audio Adapters will be displayed in the main window.

Section 7.6 | Editing or Adding a Network Profile

The Factory Defaults profile for a Wireless Audio Adapter cannot be edited.

However, there are other profiles available that can be edited to effectively create new profiles. These can be edited at any time, but any existing information in the selected profile will be overwritten once the profile has been edited and saved.

1. Display the profile to be edited

2. Give your profile a unique **Profile Name**.

3. Enter the **Service Set ID** (SSID) for your wireless LAN.

4. If you select the **Allow ad-hoc connection** checkbox, it means that your PC will use a direct peer-to-peer connection to the Wireless Audio Adapter and no Internet connection is available.

5. If you are using WEP encryption on the wireless network, click the **WEP enabled** checkbox and enter the appropriate **WEP key** and the **Key index**.

6. If you are using a proxy server, check the **Use proxy server** checkbox, enter the **Proxy server** as an IP address (e.g. **192.167.0.10**) or as a name (e.g. **my.proxy**). The **Proxy port number** must be a numeric value (usually port 80 or 8080).

7. If the Wireless Audio Adapter will get a *dynamic* IP address automatically from a DHCP server, select the **Use DHCP** checkbox.

8. If the Wireless Audio Adapter needs a *fixed* IP address, leave the **Use DHCP** checkbox unchecked and enter the **IP Address** for the Wireless Audio Adapter, **Netmask** (Subnet mask), **Gateway**, **Primary DNS** and **Secondary DNS**. If no DNS or Gateway is required, enter the address **0.0.0.0** for these.

9. Click the **Apply** button to confirm the changes, or click the **Refresh** button to discard the changes.

10. To make this the active profile for the Wireless Audio Adapter, click the **Make Active** button. (This can also be selected later on the Wireless Audio Adapter directly using the remote control) Click the **Close** button to return to the main window.

11. Click the **Discover** button to verify that the Wireless Audio Adapter can still

be found on the network after you make these changes.

Section 7.7 | Uploading New Software to the Wireless Audio Adapter

When new software becomes available for your Wireless Audio Adapter, the Software Upload wizard will help you to install a new software version for your Wireless Audio Adapter.

WARNING: The Software Upload wizard should be used with great care! Uploading the incorrect software may result in the Wireless Audio Adapter no longer working as expected.

Note: If you see the following message:

> *"A Wireless Audio Adapter was found in download mode. Do you want to upload new software for this Wireless Audio Adapter?"*

You can click the **Yes** button and proceed from Step 2 below.

1. From the main SMCWAA-B Utility window, select the Wireless Audio Adapter to be upgraded and click the Upload Software button.

2. The wizard displays the selected Wireless Audio Adapter and a warning that the upload is about to take place. Click the **Cancel** button to cancel the upload or the **Next** button to proceed.

3. Select a valid software file (.bcd file) and click the **Open** button. If the file you selected is not valid software file, an error will be displayed.

4. The wizard displays a warning and asks for confirmation. Click the **Cancel** button to cancel the upload or the **Next** button to proceed.
    This process may take a while and should not be interrupted. The current software is first erased and then the new software is uploaded to the Wireless Audio Adapter. A message is displayed when the upload has been completed.

8 | Creating and Editing Multimedia Content

MUSICMATCH Jukebox Basic allows you to create audio content that you can share on your Home Entertainment Network! And it is included on your CD-ROM. It also allows you to conveniently and easily edit the ID3 tag of your MP3s so that you can readily identify each and every MP3 when you browse through the Audio or PC Directories Menus on the SMCWAA-B.

Section 8.1 | How To Create MP3s

MUSICMATCH Jukebox is the only all-in-one jukebox that delivers free unlimited CD-quality recording/ripping using the industry leading Fraunhofer MP3 encoder. Convert your personal CDs into MP3 files with an easy one-step recording process. Automatically tag your tracks with album information and cover art when recording from CDs.

- Open the MUSICMATCH Jukebox application
- Click "CD -> Files" in the "Music Center" or select through the menu [View] -> [Recorder] to open the Recorder window
- Insert an audio CD into your CD-ROM drive
- Check the boxes next to the tracks that you want to record.
- Click the [Start] button and the application will start to record from the audio CD to MP3 format on your hard drive.

Section 8.2 | How To Create Playlists

The SMCWAA-B will play tracks from playlists you create on your computer. The Wireless Audio Adapter supports playlists in "M3U" or MPEG Playlist file format. To create a playlist using MUSICMATCH Jukebox:

- Open the MUSICMATCH Jukebox application
- Open the "Music Library" by clicking on the "My Library" tab
- Drag and drop files, or folders with music files, from anywhere on your computer or the "Music Library" into the "Playlist" window. Your files will begin to play.
- Drag and drop files and you will be able to change the order of the tracks in the playlist.
- Click the "Save" button on the "Playlist" window, or click through the menu buttons [Options] -> [Playlist] -> [Save Playlist]. You will be prompted to name the playlist. In the "Name" field, type the name you would like to give the playlist. Remember, this is the name that will appear on the LCD User Interface of the SMCWAA-B. Click "Save".

Section 8.3 | How To "Tag" MP3s

ID3 Tag information is the "Artist", "Album", "Genre" and "Track" info you see when you are playing a song using the SMCWAA-B Wireless Audio Adapter. Inserting Tag Info is optional, however you will find that it is very useful in effectively organizing your music collection.

To edit the tag information:

- Open the MUSICMATCH Jukebox application
- Highlight the song that is improperly tagged
- Click [View/Edit Tags] in the "Music Center" on the left
- If you selected a song from your playlist, click [Current Playlist], otherwise, click [My Library]
- Enter the appropriate information
- Press [OK] when complete

9 | Troubleshooting

Problem	Possible Cause	Solution
The Wireless Audio Adapter does not react to remote commands and hangs in the UPnP Menu structure.	This can be caused by network delays when sending out UPnP requests.	Wait a few seconds and try again. If the problem persists, turn off the Wireless Audio Adapter and turn it on again.
Unable to browse music files.	No music files in the Musicmatch Music Library.	Follow the instructions under "Enabling Browsing of Your Music Files" in the SMCWAA-B User Guide to add files to the MusicLibrary.
	UPnP server is not running.	If running the Musicmatch server, follow the instructions under "Starting the UPnP Music Server" in the SMCWAA-B User Guide. If using a different media server, refer to the documentation for that server to start it.
Presets do not work anymore after a new CD is ripped or a server is reset.	There are limitations regarding the presets, depending on the PC Server tool used (e.g. Musicmatch, EZ-Stream Media Server).	The PC server software may not be fully compatible with the UPnP specification. There is no workaround other than storing the presets again.

Wireless Audio Adapter Error Codes

The Wireless Audio Adapter LCD screen may display the following error codes in the event of a problem.

Error Code	Explanation
Favorites List full.	The Favorites list is limited to 20 items. Replace an existing item with the new item. See "Replacing Items on the Favorites List" in the **Wireless Audio Adapter User Guide** for details.

10 | Frequently Asked Questions

- **Can I share network drives?**
  - Yes. You must first share the drive (using standard Windows sharing) from the PC that contains the multimedia content you want access to. Then go to the host PC where the Musicmatch Jukebox UPnP Server software is installed. Map the shared drive, then open the MusicLibrary and add the content from the mapped network drive as if it were on your local hard drive.
- **What happens if I share several gigs of multimedia content?**
  - The Musicmatch Jukebox application may take some time to share very large directories of content. This highly depends on the speed of your host PC. You can however access multimedia that was already shared while you wait for the program to update the SMCWAA-B Wireless Audio Adapter.
- **What happens if there is interference in my environment?**
  - Interference affects the wireless signal of the SMCWAA-B as it would any other wireless networking device and the performance may be adversely affected. You should attempt to minimize interference in your network environment as much as possible.
- **Can I share files from my CD-ROM?**
  - Yes. You simply need to go through the standard process of adding them to the Musicmatch MusicLibrary as if they were stored on your local hard drive. (See Section 4, Step 5)
- **Can I use two or more SMCWAA-B Wireless Audio Adapters on my network?**
  - Yes. You can have up to 10 SMCWAA-B devices running at the same time on your wireless network.
- **Can I have more than one host PC simultaneously running the Musicmatch Jukebox UPnP Server software on one network?**
  - Yes. You can have up to 10 UPnP Servers running at the same time on your network.
- **What is a Wireless LAN?**
  - A local area network that transmits over the air typically in an unlicensed frequency such as the 2.4GHz band. A wireless LAN does not require lining up devices for line of sight transmission like IrDA. Wireless access points (base stations) are connected to an Ethernet hub or server and transmit a radio frequency over an area of several hundred to a thousand feet which can penetrate walls and other non-metal barriers. Roaming users can be handed off from one access point to another like a cellular phone system. Laptops use wireless network cards that plug into an existing

PCMCIA slot or that are self contained on PC cards, while stand-alone desktops and servers use plug-in cards (ISA, PCI, etc.).

- **What is Ad-hoc?**
  - o An AD-HOC network is a peer-to-peer network where all the nodes are wireless clients. As an example, two PC's with wireless adapters can communicate with each other as long as they are within range. A wireless extension point can extend the range of an AD-HOC network.

- **What is the 802.11 standard?**
  - o A family of IEEE standards for wireless LANs first introduced in 1997. 802.11 provides 1 or 2 Mbps transmission in the 2.4GHz band using either a frequency hopping modulation (FHSS) technique or direct sequence spread spectrum (DSSS), which is also known as CDMA. The 802.11b standard defines an 11 Mbps data rate in the 2.4GHz band, and the 802.11a standard defines 54 Mbps in the 5GHz band.

- **What is Infrastructure?**
  - o In order for your wireless components to interact with traditional wired networks they need a media bridge to translate for them. This is where INFRASTRUCTURE or Network mode comes into play. An ACCESS POINT is attached to the network using CAT-5 Ethernet cable attaching to a hub, switch or another PC. Wireless PC's can then communicate to Wired Ethernet computers through this access point. The total range of the network is limited to a radius around this Access Point. To increase the range, extra Access Points may be wired into the network. These Access Points talk to each other over the hard-wired Ethernet cables however, they cannot communicate wirelessly to one another and they must be wired to the same network. Individual wireless PC's can move between Access Points on the same network seamlessly due to a feature called ROAMING.

- **What is Tx-Rate?**
  - o Tx-Rate or TRANSFER RATE is the current speed at which the network component is operating. SMC-802.11b products can operate at speeds of 1Mb, 2Mb, 5.5Mb, & 11Mbps. A wireless card set to AUTO will attempt to connect at whatever speed will give the best throughput on the network.

- **What is RTS Threshold?**
  - o (Request To Send) An RS-232 signal sent from the transmitting station to the receiving station requesting permission to transmit. RTS is a collision avoidance method used by all 802.11b wireless networking devices. In most cases you will not need to activate or administer RTS. Only if you find yourself in an Infrastructure environment where all nodes are in range of the Access Point but

may be out of range of each other. It is recommended to leave this setting at its default value leaving this feature disabled.

- **What is Authentication Algorithm?**
  - o Authentication Algorithm is the means by which one station is authorized to communicate with another. In an Open System, any station can request authorization in accordance with the WECA standard. In a Shared key system, only stations that possess a secret encrypted key may participate in the network. This is a low level security key which allows the equipment with the shared key algorithm to see each other on the wireless lan.

- **What is DBI?**
  - o The ability of the antenna to shape the signal and focus it in a particular direction is called Antenna Gain, and is expressed in terms of how much stronger the signal in the desired direction is, compared to the worst possible antenna, which distributes the signal evenly in all directions (an Isotropic Radiator). To express the relationship to the Isotropic reference, this is abbreviated: "dBi". The typical omni-directional "stick" antenna is rated at 6-8 dBi, indicating that that by redirecting the signal that would have gone straight up or down to the horizontal level, 4 times as much signal is available horizontally. A parabolic reflector design can easily achieve 24 dBi.

- **What is WEP?**
  - o Short for Wired Equivalent Privacy, WEP is a security protocol for wireless local area networks (WLANs) defined in the 802.11b and 802.11a standards.
  - o WEP is designed to provide the same level of security as that of a wired LAN. LANs are inherently more secure than WLANs because LANs are somewhat protected by the physicalities of their structure, having some or all part of the network inside a building that can be protected from unauthorized access. WLANs, which are over radio waves, do not have the same physical structure and therefore are more vulnerable to tampering.
  - o WEP aims to provide security by encrypting data over radio waves so that it is protected as it is transmitted from one end point to another. The Wired Equivalent Privacy (WEP) feature uses the RC4 PRNG algorithm developed by RSA Data Security, Inc.
  - o If your wireless access point supports MAC filtering, it is recommended that you use this feature in addition to WEP (MAC filtering is much more secure than encryption).

11 | Technical Specifications

Standards:
IEEE 802.11b
Universal Plug-and-Play (UPnP)
Intel Networked Media Product Requirements (NMPR) – Control Point

Wireless Data Rates (With Automatic Fall-back):
802.11b = 1/2/5.5/11 Mbps

Data Modulation Techniques:
802.11b (DSSS) = BPSK, QPSK, CCK

Radio Signal Type:
Direct Sequence Spread Spectrum (DSSS)

Security:
64/128 Wired Equivalent Privacy (WEP)

Frequency Band:
2.4 – 2.497 GHz (2.4GHz ISM Band)

Output Power:
15dBm +/- 1dBm

Receiver Sensitivity:
-83dBm @ 11Mbps
-87dBm @ 5.5Mbps
-89dBm @ 2.0Mbps
-93dBm @ 1.0Mbps

Channel Support (2.4GHz RF):
US/Canada - 11

Media Access Protocol:
CSMA/CA (Collision Avoidance)

Firmware Upgrade:
Via SMCWAA-B PC Utility

Network Configuration:
Ad-Hoc (Peer-to-Peer)

Infrastructure

Interface:
Network: 802.11b
Audio: SNR (A-weighted): >100dB
1.5m length right-angle 1/8" TRS jack to dual RCA audio L/R
LCD matrix: 88.44(W) x 39.66(H) mm

File Format:
Audio – MP3: up to 320kbps (CBR or VBR), WMA-9
ID3 v1 or v2
Internet Radio via Rhapsody

Operating System:
Windows 98SE, Me, 2000, XP

Remote Control:
IR

Compliance:
FCC part 15 subpart C (15.247) and Class B
ETSI 300-328/301-489-17 (General EMC requirement for RF equipment)
Industry Canada
CE Mark
UPnP
Intel NMPR

Operational Conditions:
Operating Temperature: 0° C to 70° C
Storage Temperature: -15° C to +85° C
Humidity: 5% to 95% non-condensing

Dimensions:
157.79 (L) x 40 (W) x 98 (H) mm

Weight:
300 g

12 | Terminology

10BaseT - Physical Layer Specification for Twisted-Pair Ethernet using Unshielded Twisted Pair wire at 10Mbps. This is the most popular type of LAN cable used today because it is very cheap and easy to install. It uses RJ-45 connectors and has a cable length span of up to 100 meters. There are two versions, STP (Shielded Twisted Pair) which is more expensive and UTP (Unshielded Twisted Pair), the most popular cable. These cables come in 5 different categories. However, only 3 are normally used in LANs, Category 3, 4 and 5. CAT 3 TP (Twisted Pair) cable has a network data transfer rate of up to 10Mbps. CAT 4 TP cable has a network data transfer rate of up to 16Mbps. CAT 5 TP cable has a network data transfer rate of up to 100Mbps.

Access Point - A device that is able to receive wireless signals and transmit them to the wired network, and vice versa - thereby creating a connection between the wireless and wired networks.

Ad Hoc - An ad hoc wireless LAN is a group of computers, each with LAN adapters, connected as an independent wireless LAN.

Adapter - A device used to connect end-user nodes to the network; each contains an interface to a specific type of computer or system bus, e.g. EISA, ISA, PCI, PCMCIA, CardBus, etc.

Auto-Negotiation - A signaling method that allows each node to define its operational mode (e.g., 10/100 Mbps and half/full duplex) and to detect the operational mode of the adjacent node.

Backbone - The core infrastructure of a network. The portion of the network that transports information from one central location to another central location where it is unloaded onto a local system.

Base Station - In mobile telecommunications, a base station is the central radio transmitter/receiver that maintains communications with the mobile radiotelephone sets within its range. In cellular and personal communications applications, each cell or micro-cell has its own base station; each base station in turn is interconnected with other cells' bases.

Bitmap – A Windows and OS/2 bitmapped graphics file format. Bitmap files provide formats for 2, 16, 256, or 16 million colors. It uses the extension .BMP.

BSS - BSS stands for "Basic Service Set". It is an Access Point and all the LAN PCs that are associated with it.

CSMA/CA - Carrier Sense Multiple Access with Collision Avoidance

DHCP - Dynamic Host Configuration Protocol. This protocol automatically configures the TCP/IP settings of every computer on your home network.

DNS - DNS stands for Domain Name System, which allows Internet host computers to have a domain name (such as www.smc.com) and one or more IP addresses (such as 192.34.45.8). A DNS server keeps a database of host computers and their respective domain names and IP addresses, so that when a domain name is requested (as in typing " www.smc.com" into your Internet browser), the user is sent to the proper IP address. The DNS server address used by the computers on your home network is the location of the DNS server your ISP has assigned.

DSL - DSL stands for Digital Subscriber Line. A DSL modem uses your existing phone lines to transmit data at high speeds.

Ethernet - A standard for computer networks. Ethernet networks are connected by special cables and hubs, and move data around at up to 10 million bits per second (Mbps).

ESS - ESS (ESS-ID, SSID) stands for "Extended Service Set". More than one BSS is configured to become an Extended Service Set. LAN mobile users can roam between different BSSs in an ESS (ESS-ID, SSID).

Fast Ethernet NIC - Network interface card that is in compliance with the IEEE 802.3u standard. This card functions at the media access control (MAC) layer, using carrier sense multiple access with collision detection (CSMA/CD).

Fixed IP – (see Static IP)

Full-Duplex - Transmitting and receiving data simultaneously. In pure digital networks, this is achieved with two pairs of wires. In analog networks, or digital networks using carriers, it is achieved by dividing the bandwidth of the line into two frequencies, one for sending, one for receiving.

Hub - Central connection device for shared media in a star topology. It may add nothing to the transmission (passive hub) or may contain electronics that regenerate signals to boost strength as well as monitor activity (active/intelligent hub). Hubs may be added to bus topologies; for example, a hub can turn an Ethernet network into a star topology to improve troubleshooting.

ID3 – The data fields in an MP3 that hold the artist name, track titles, album titles, genre, etc are known as ID3 tags.

IP Address - IP stands for Internet Protocol. An IP address consists of a series of four numbers separated by periods, that identifies an single, unique Internet computer host. Example: 192.34.45.8.

ISP - Internet Service Provider. An ISP is a business that provides connectivity to the Internet for individuals and other businesses or organizations.

JPEG – Joint Photographic Experts Group. JPEG is a standard for compressing still images and it provides compression with ratios up to 100:1. File extensions are .JPG or .JPEG.

LAN - A communications network that serves users within a confined geographical area. It is made up of servers, workstations, a network operating system and a communications link. Servers are high-speed machines that hold programs and data shared by network users. The workstations (clients) are the users' personal computers, which perform stand-alone processing and access the network servers as required.

Diskless and floppy-only workstations are sometimes used, which retrieve all software and data from the server. Increasingly, "thin client" network computers (NCs) and Windows terminals are also used. A printer can be attached locally to a workstation or to a server and be shared by network users. Small LANs can allow certain workstations to function as a server, allowing users access to data on another user's machine. These peer-to-peer networks are often simpler to install and manage, but dedicated servers provide better performance and can handle higher transaction volume. Multiple servers are used in large networks.

The message transfer is managed by a transport protocol such as TCP/IP and NetBEUI. The physical transmission of data is performed by the access method (Ethernet, Token Ring, etc.), which is implemented in the network adapters that are plugged into the machines. The actual communications path is the cable (twisted pair, coax, optical fiber) that interconnects each network adapter.

MAC Address - MAC (Media Access Control) A MAC address is the hardware address of a device connected to a network.

MDI / MDI-X - Medium Dependent Interface - Also called an "uplink port," it is a port on a network hub or switch used to connect to other hubs or switches without requiring a crossover cable. The MDI port does not cross the transmit and receive lines, which is done by the regular ports (MDI-X ports) that connect to end stations. The MDI port connects to the MDI-X port on the other device. There are typically one or two ports on a device that can be toggled between MDI (not crossed) and MDI-X (crossed).

Medium Dependent Interface – X (crossed) - A port on a network hub or switch that crosses the transmit lines coming in to the receive lines going out.

MP3 – MPEG Audio Layer 3. This is an audio compression technology that is included in the MPEG-1 and -2 specifications. MP3 encoding can allow you to compress CD-quality sound by a factor of 12.

MPEG – Moving Pictures Experts Group. MPEG is a standard for compressing video. MPEG-1 can provide resolution of 352x240 at 30 frames/second (fps) with 24-bit color and CD-quality sound. MPEG-2 can provide resolution of 704x480. MPEG uses the same intraframe coding as JPEG for individual frames, but also uses interframe coding which can help to further compress the video data, thereby reducing the overall size of the video.

NAT – (Network Address Translation) This process allows all of the computers on your home network to use one IP address. The NAT capability of the Barricade, allows you to access the Internet from any computer on your home network without having to purchase more IP addresses from your ISP. Network Address Translation can be used to give multiple users access to the Internet with a single user account, or to map the local address for an IP server (such as Web or FTP) to a public address. This secures your network from direct attack by hackers, and provides more flexible management by allowing you to change internal IP addresses without affecting outside access to your network. NAT must be enabled to provide multi-user access to the Internet or to use the Virtual Server function.

PCI - Peripheral Component Interconnect - Local bus for PCs from Intel that provides a high-speed data path between the CPU and up to 10 peripherals (video, disk, network, etc.). The PCI bus runs at 33MHz, supports 32-bit and 64-bit data paths, and bus mastering.

PPPoE - Point-to-Point Protocol over Ethernet. Point-to-Point Protocol is a method of secure data transmission originally created for dial-up connections. PPPoE is for Ethernet connections.

Proxy - A proxy server sits between the client and the Internet. It can retrieve requested files from its own cache or from a remote server. It is also used in conjunction with a firewall and gateway to enhance security on a network.

Roaming - A function that allows your to move through a particular domain without losing network connectivity.

Static IP - If your Service Provider has assigned a fixed IP address; enter the assigned IP address, subnet mask and the gateway address provided by your service provider.

Subnet Mask - A subnet mask, which may be a part of the TCP/IP information provided by your ISP, is a set of four numbers configured like an IP address. It is used to create IP address numbers used only within a particular network (as opposed to valid IP address numbers recognized by the Internet.

TCP/IP - Transmission Control Protocol/Internet Protocol. This is the standard protocol for data transmission over the Internet.

TCP - Transmission Control Protocol - TCP and UDP (User Datagram Protocol) are the two transport protocols in TCP/IP. TCP ensures that a message is sent accurately and in its entirety. However, for real-time voice and video, there is really no time or reason to correct errors, and UDP is used instead.

UDP - User Datagram Protocol - A protocol within the TCP/IP protocol suite that is used in place of TCP when a reliable delivery is not required. For example, UDP is used for real-time audio and video traffic where lost packets are simply ignored, because there is no time to retransmit. If UDP is used and a reliable delivery is required, packet sequence checking and error notification must be written into the applications.

UPnP - Universal Plug and Play is a protocol that allows for the automatic discovery and control of networked devices and services.

WMA – Windows Media Audio – An audio codec developed by Microsoft.

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